

TMDL Implementation

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Second Step in TMDL Process

- **Develop TMDL Implementation Plan**
 - State requirement as mandated by legislation
 - In accordance with guidance manual developed by DCR & DEQ

TMDL Implementation Plan - document that details actions or strategies to be undertaken to achieve load reductions as defined by the TMDL



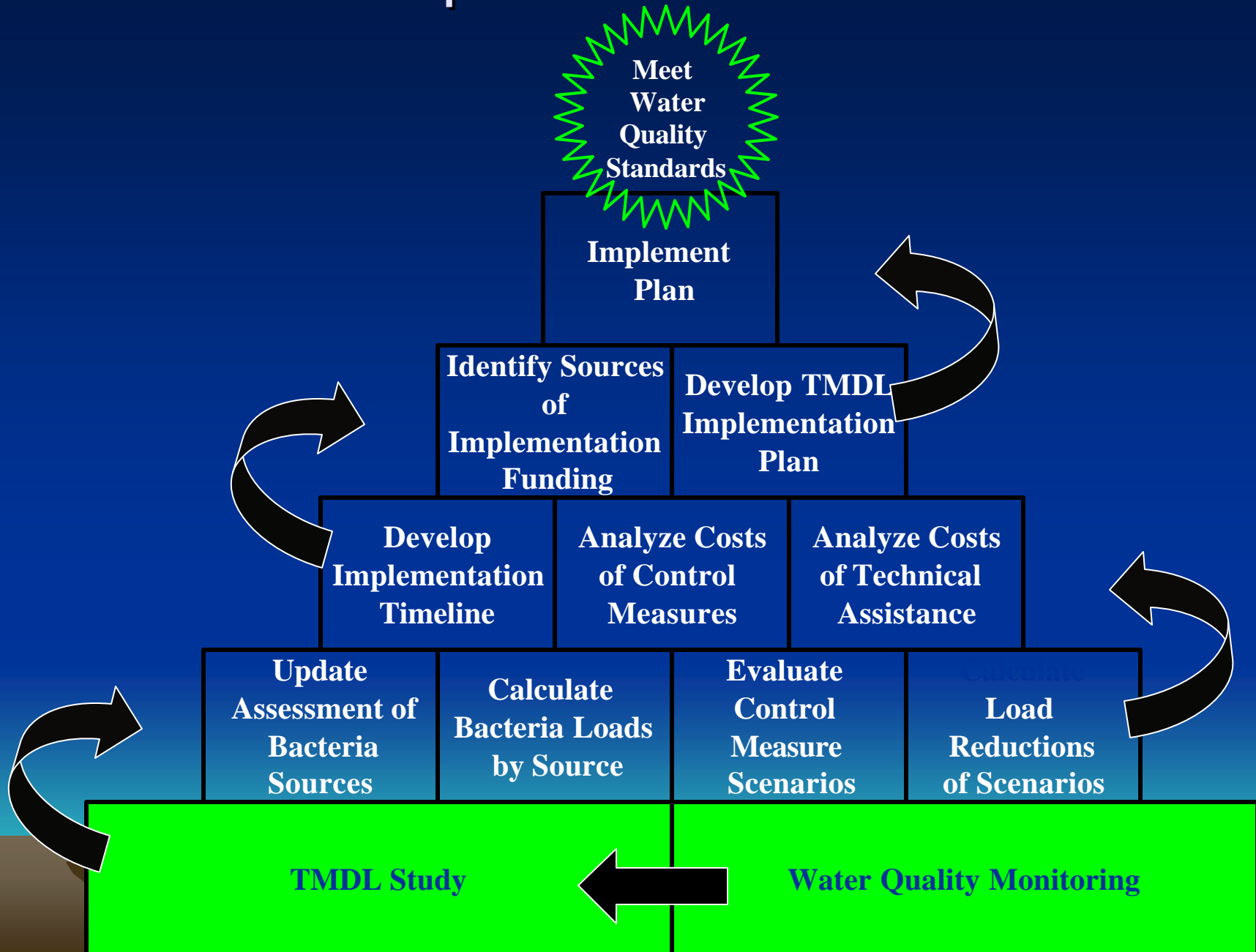
Implementation Plan Objectives

- Develop a phased or staged implementation plan
- Develop an implementation plan that fully achieves the TMDL
- Defines the resources needed to fully achieve the TMDL

Key Components

- Public Participation
- Corrective Actions
- Cost/Benefit Analysis
- Measurable Goals
- Timeline to Achieve Water Quality Objectives - Milestones

TMDL Implementation Process



Public Participation



- **Public Meetings (2 meetings)**
 - Informational
 - Solicit public participation
 - Provide a forum for public comment
- **Steering Committee**
 - Direct the overall process
 - Considers input from Working Groups
- **Working Groups**
 - Address community issues/concerns on specific topics

Working Groups

- Includes:

- Governmental
- Residential/Urban
- Agricultural
- Business
- Others?

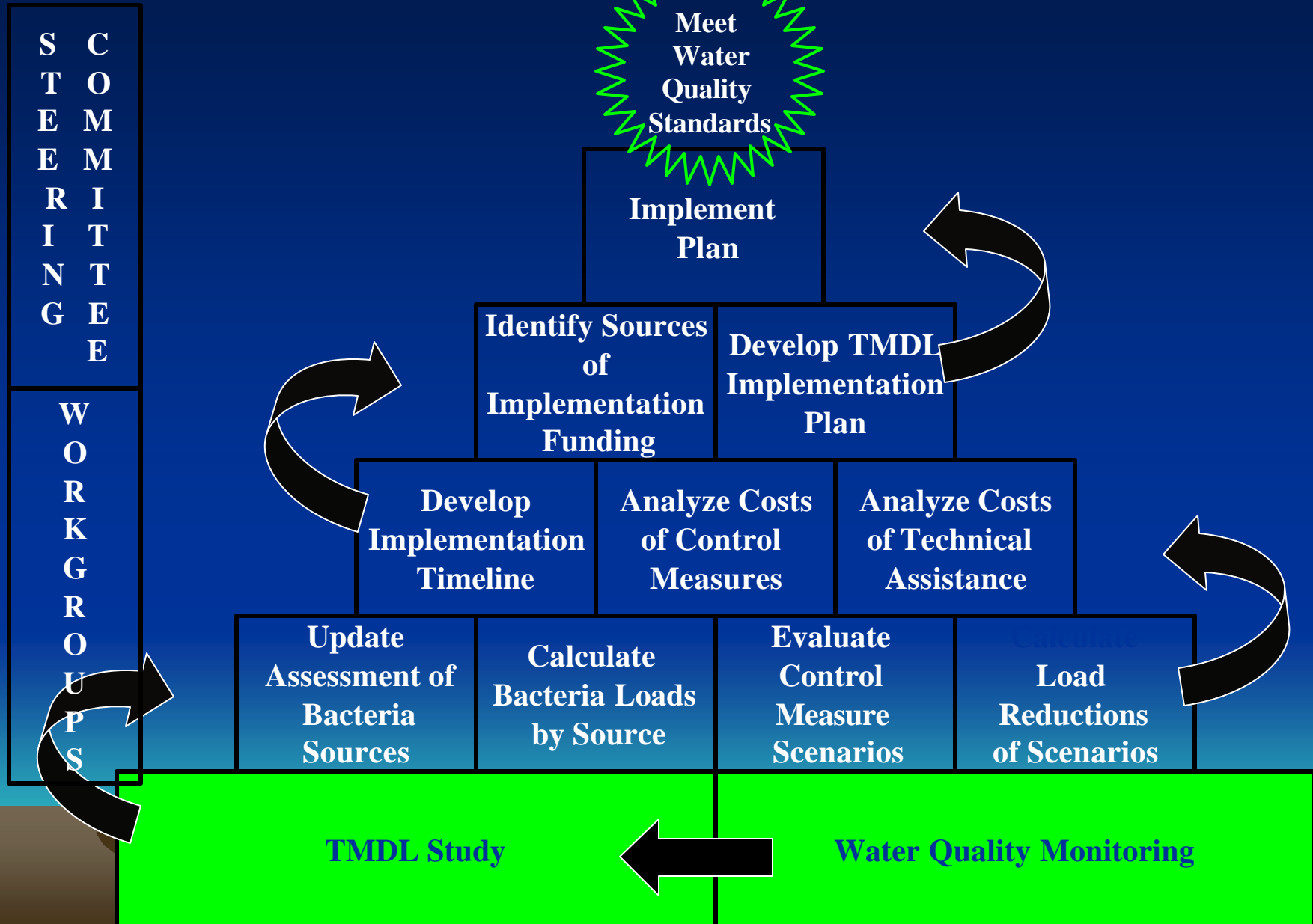
- Meet:

- 1 – 2 times each
- Starting with first public meeting or after

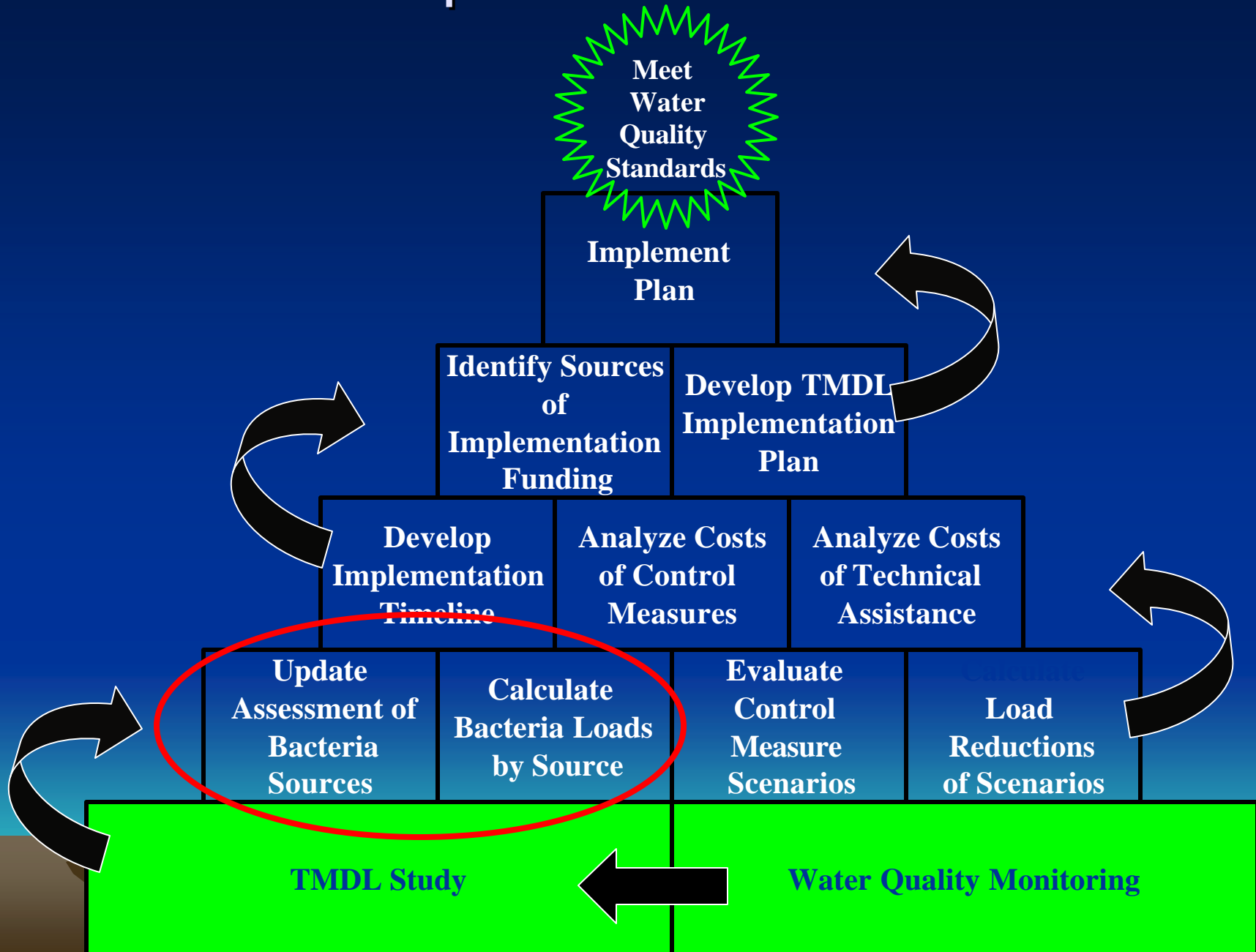
Steering Committee

- Includes:
 - Local, State, Federal agencies, Working Group Representatives, local organizations, etc.
- Meet:
 - 1-2 times during plan development
 - During implementation project

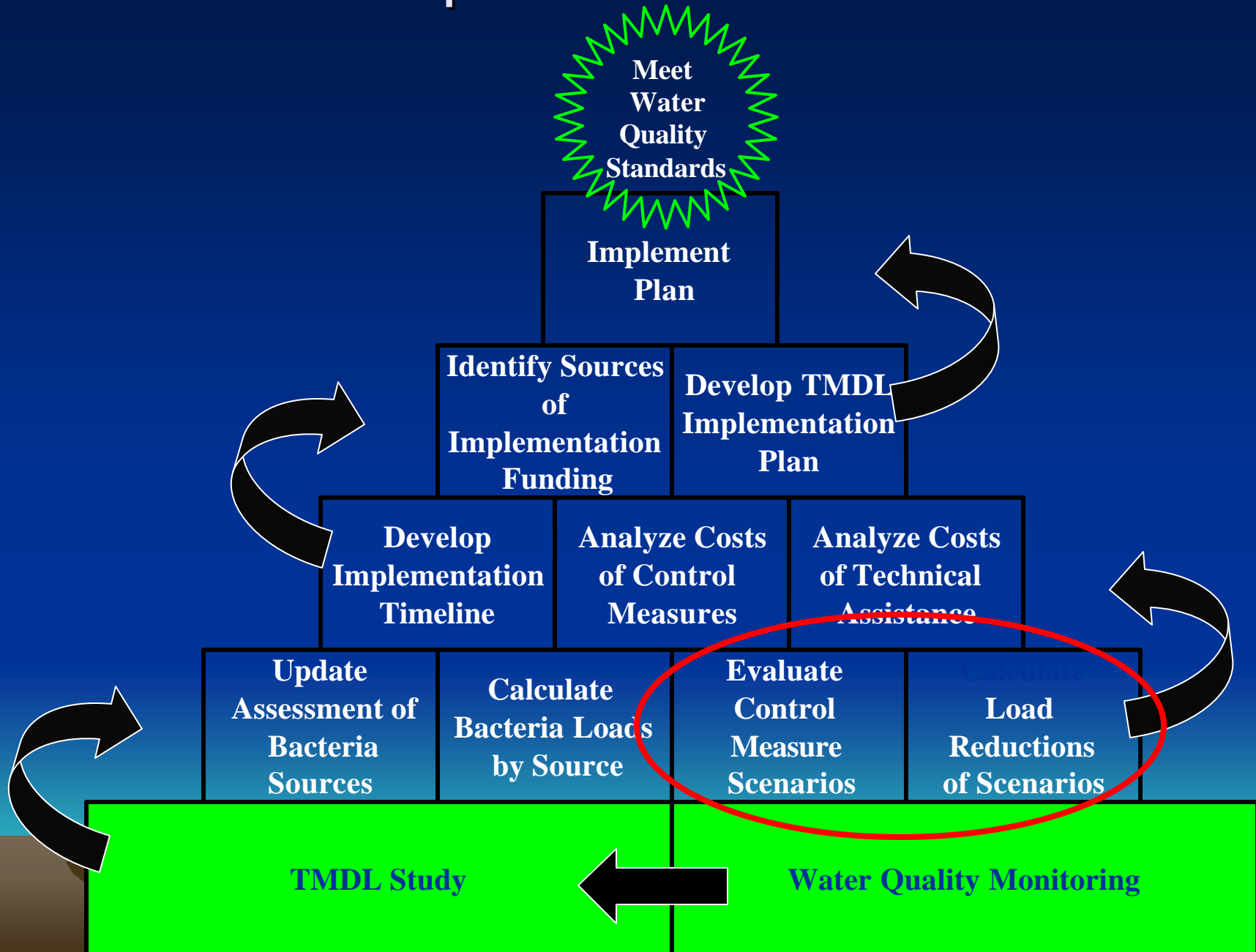
TMDL Implementation Process



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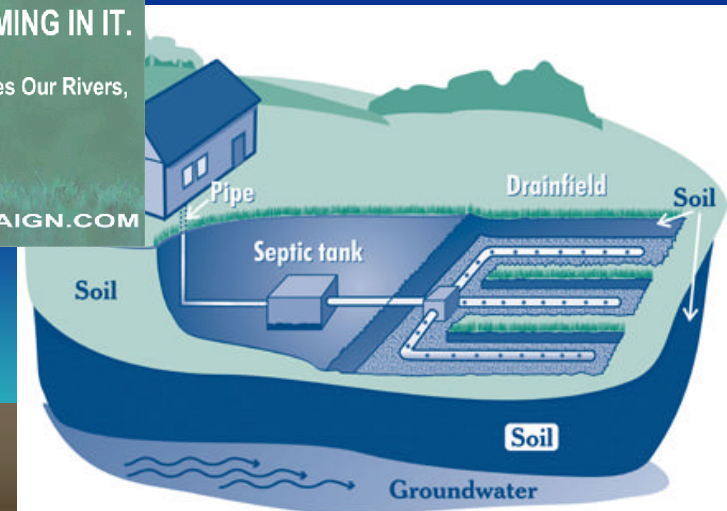


Corrective Actions

- Assess needs
 - TMDL allocations
 - Monitoring
 - Identify Best Management Practices (BMPs)
(both existing and potential)
- Define constraints
 - Staffing, financial, technical, social ...
- Staged approach (Targeting)

Control Measures - BMPs

- The TMDL IP will develop a list of BMP types designed to address the pollutants of concern (i.e. bacteria)
- Plan will quantify approximate numbers needed and estimated costs of installation



Potential Control Measures - Agriculture

- Evaluate Use of Poultry Litter and Biosolids as Soil Amendments
- Conservation Tillage
- Vegetated Buffers
- Retention Features

Potential Control Measures - Residential

- Septic System Repair
- Septic System Installation / Replacement
- Septic System Pump Out
- Alternative Waste Treatment System
- Residential Education
- Pet Waste Composters
- Vegetated Buffers
- Retention Features

Potential Control Measures - Other

- No Discharge Zone for Boats
- Pump-out Facilities at Marinas
- Improved “housekeeping” practices to reduce food/den options and minimize wildlife traffic
- No Wake Zone to minimize resuspension of sediment based bacteria
- Wildlife Management Program



Implementation: Staged

- Use spatial and temporal targeting to attain implementation goals as soon as possible
- Get the greatest possible water quality impact from the funding known to be available in the first few years

Cost/Benefit Analysis

- Assess costs for staged/full implementation
- Evaluate water quality benefits through modeling
- Identify funding sources

Measurable Goals/Time Line

- Implementation milestones - stakeholders
- Interim water quality milestones – modeling
- 5 - 10 year timeframe to meet water quality standards
- Monitoring
 - Assess progress – DEQ & citizen monitoring

Implementation

- Funding needs
 - Agricultural BMPs
 - Residential & Urban BMPs (apply for grants)
 - Education/Outreach & Technical Assistance

Potential Funding Sources

- Potential funding sources for best management practices selected during implementation plan development:
 - CREP
 - EQIP
 - WQIF – targeted cost-share funds
 - WQIF – competitive projects
 - Revolving loan funds
 - State tax credits



Plan Integration

- IP developed in context with other planning efforts
- Local Comprehensive Plan, etc.
- Others?



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The Albemarle-Pamlico National Estuary Program

**A Watershed Management Joint Venture
Between Virginia and North Carolina**



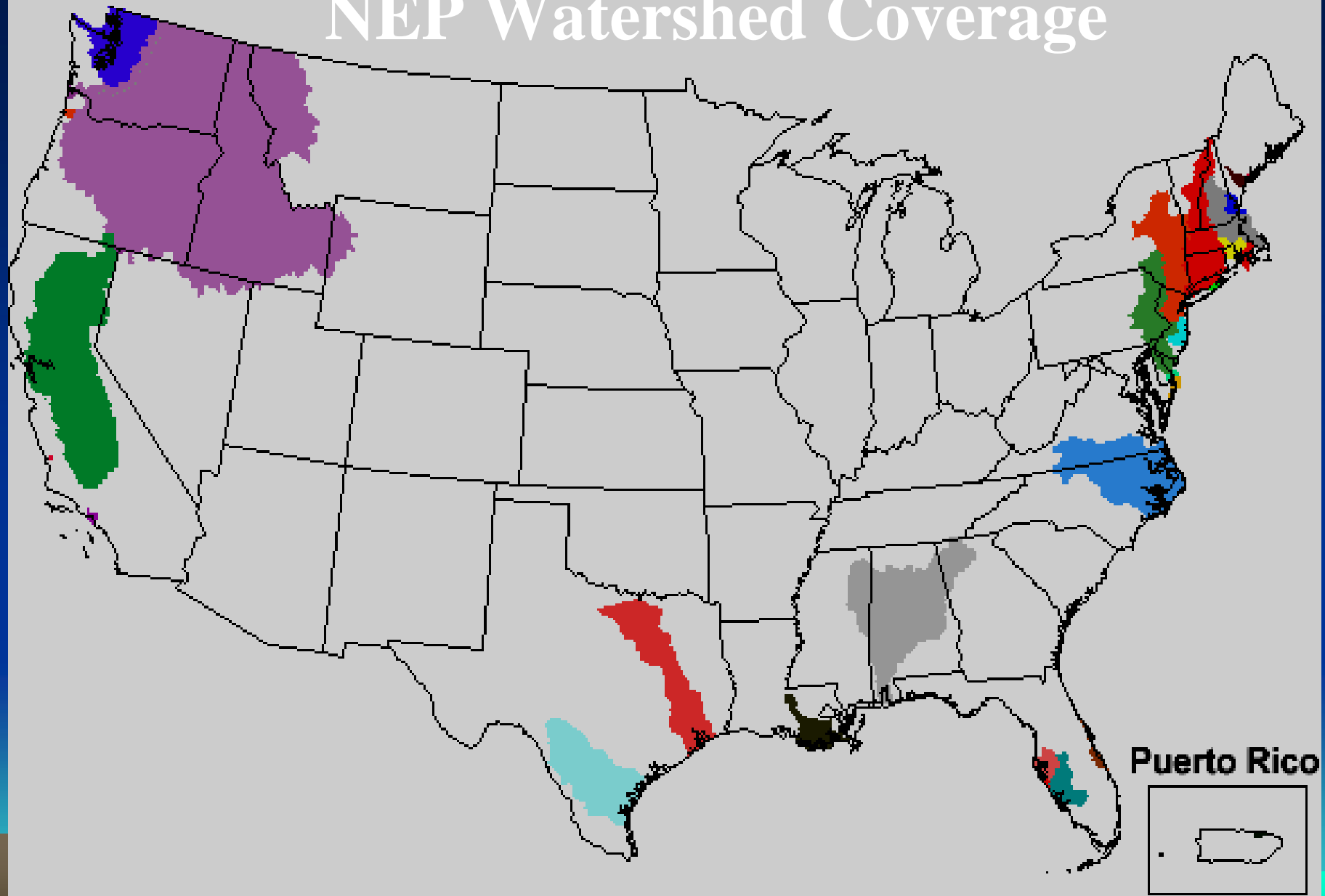
The National Estuary Program

- **Created in 1987 through amendments to the Clean Water Act.**
- **Modeled after many of the Chesapeake Bay Program Successes.**
- **Established as a voluntary, State managed, program to restore and preserve the natural and economic resources of the nation's estuaries.**
- **28 programs currently being managed (not including the Chesapeake Bay).**

National Estuary Programs

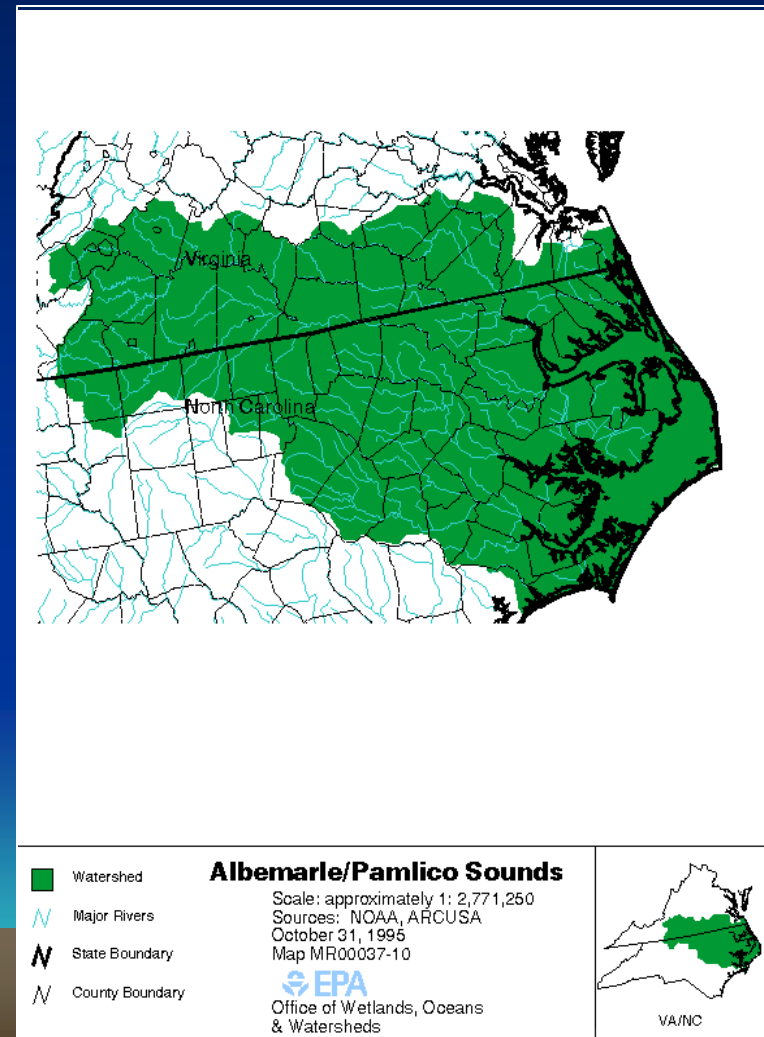


NEP Watershed Coverage



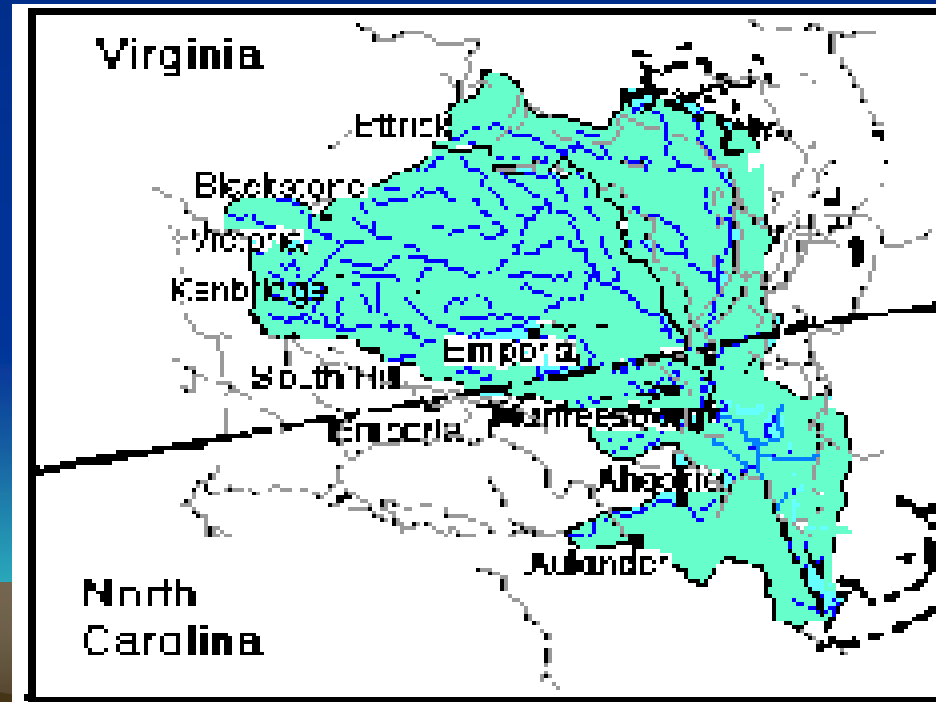
Albemarle-Pamlico National Estuary Program

- The nation's second largest estuary system.
- One of North Carolina's most important natural and economic resources.
- Virginia covers 75% of the Chowan Watershed and 21% of the Albemarle Watershed headwaters.



Chowan Basin

- The Nottaway, Blackwater and Meherrin Rivers, originating in Virginia, converge to form the Chowan River system encompassing 4,970 sq. miles (only 1315 miles in North Carolina).
- 3,151,796 acres within the watershed, 2,351,795 acres are in Virginia (75%).
- Approximately 67% of the total stream miles within the watershed are impaired.
- 82% of impacts are from non point sources



Implement and Coordinate Efforts

Chowan Basin:

- North Carolina is targeting management practices that provide sustainable nutrient reductions from the agricultural industry.



- Likewise, Virginia is focused on promoting best management practices on agricultural lands and effective nutrient management planning.